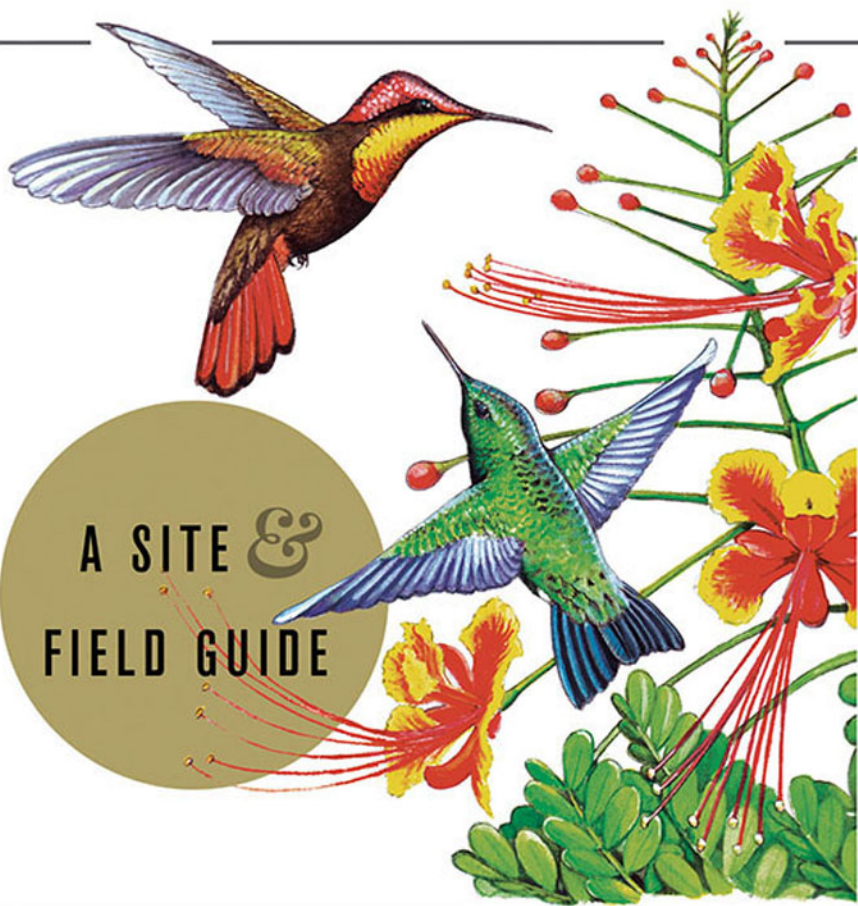


BIRDS OF

ARUBA | BONAIRE | CURAÇAO



JEFFREY V. WELLS
ALLISON CHILDS WELLS

ILLUSTRATED BY
ROBERT
DEAN

Birds of Aruba, Bonaire, and Curaçao



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A SITE AND FIELD GUIDE

JEFFREY V. WELLS
ALLISON CHILDS WELLS

Illustrated by

ROBERT DEAN

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We dedicate this book to Professor Doctor K. H. Voous, a pioneer of Caribbean ornithology who established the baseline for ornithology in the “Netherlands Antilles,” as the islands were known during his time. His *Birds of the Netherlands Antilles* was indispensable during our early years on the islands and continues to be an important resource and inspiration.

This book is also dedicated to the warm, welcoming people of Aruba, Bonaire, and Curaçao. We are grateful for the opportunity to have spent so much time on the islands that are their home, and it is their hands that hold the future of the islands’ birds and other wildlife.

Finally, we dedicate this book to our son, Evan, who made his first visit to Aruba when Allison was four months pregnant with him, then again at five months old, and many times since. Evan has come to love the islands—their birds, culture, people, and special places—as much as we do, and we trust that he will continue to answer the call of the islands throughout his life.



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Preface

We made our first trip to Aruba in 1993, as members of the twenty-piece Ithaca Ageless Jazz Band. As lead trumpeter (Jeff) and vocalist (Allison), we performed music ranging from swing numbers of the Big Band Era to contemporary jazz, at resorts throughout the island. Following our gigs, our bandmates often headed off to casinos or clubs, but we hit the sack as early as possible to prepare for birding at dawn the next day.

None of the field guides we carried with us in those early years was exactly what we needed. Several locally produced bird guides, including *Birds of Aruba* (Reuter) and *Our Birds* (de Boer), served a very important purpose. The latter, written for a local audience, is a valuable educational tool, with text provided in three languages. However, both books covered very few species and provided only limited information about those species. Field guides covering the Caribbean or regions in South America did not include all of the birds of Aruba, Bonaire, and Curaçao (ABCs).

As a guide for our birding trips—and as a reference work for our research—*Birds of the Netherlands Antilles* by K. H. Voous was indispensable, providing detailed information about the life histories of most of the birds that occur on the ABCs, along with critical ecological information for each of the islands. Packing this book became as routine to us as packing our toothbrushes and binoculars. In his tome, Voous mentions several of the most important birding spots on each of the islands—Bubali Bird Sanctuary and Arikok National Park on Aruba; the Pekelmeer and Washington-Slagbaai National Park on Bonaire; and Malpais and Christoffel Park on Curaçao. His book, which was published in 1983, was never intended to be either a site guide or a bird-identification guide, however, and much of the careful research he conducted for it had become outdated before we first set foot on the ABCs.

We eventually left the band and moved from Ithaca, New York, back to our home state of Maine, but our trips to the ABCs continued. The more birding we did on the islands, and the more data we collected about the resident species and migratory visitors, the more it became apparent that a new, modern field guide was in order. We started by creating two websites, one for the birds of Aruba (www.arubabirds.com) and the other for the birds of Bonaire (www.bonairebirds.com). The websites allowed us to share information and, at the same time, to collect information about sightings and other data from our fellow birders. With each visit to the islands, as we gathered more data about the birds and where to find them, our vision for this book—a bird identification and site guide—came into clearer focus, and we recognized the importance of also including a section on conservation.

Over the years we built many important relationships with the staff at Arikok National Park on Aruba and with the researchers and managers at STINAPA and CARMABI who run the national parks on Bonaire and Curaçao, respectively. We learned a great deal from them about the conservation issues on their islands and

the struggles relating thereto, including the lack of ornithological training for park rangers. With them and with the support of concerned members of the islands' private sector, we helped send a few park rangers to the United States, where they learned bird study techniques, bird identification and biology, and bird conservation practices—knowledge that they were then able to share with other park rangers. We also learned that a book of this kind would be extremely useful as a reference for those earning their livelihoods protecting their natural resources. We hope, too, that the book will be useful for young people from Aruba, Bonaire, and Curaçao who have an interest in learning more about the birds that are part of their natural heritage.

We know from our own experience that the tourists unloading their bags from the taxi in front of their resort hotel are often the very same people who want to know the name of those little black-and-yellow birds that hop onto the rim of their glasses for a sip of mango juice at breakfast. We hope that birders from all parts of the world—including the ABCs—will find this book useful and enjoyable. But we also hope to reach the beachgoers, golfers, shoppers, windsurfers, and scuba divers—indeed anyone wishing to learn more about the birds of Aruba, Bonaire, and Curaçao and where to find them.

Best in birding,
Allison and Jeff Wells

Acknowledgments

During our more than two decades of studying the birds of Aruba, Bonaire, and Curaçao, we have benefitted from the assistance, advice, and good company of many people and institutions. We want to thank and acknowledge as many of them as possible and apologize in advance to anyone we might have left off the list.

First and foremost we would like to extend our utmost thanks to the Ellsworth Kelly Foundation, whose crucial support for the book's artwork finally moved this project toward completion. Sadly, Ellsworth himself passed away before this book was published, but we gratefully acknowledge his long-held interest in birds and his accomplishments as a world renowned artist.

The nonprofit organizations by whom we have been employed were also crucial partners in the multiyear process of researching and writing this book. Our early years of researching the birds of Aruba, Bonaire, and Curaçao took place while we were at the Cornell University Lab of Ornithology (Allison) and the National Audubon Society (Jeff). Both institutions were great places to work and were supportive of our interests in the birds of these islands and their conservation. Over the last decade, the Boreal Songbird Initiative (Jeff) and the Natural Resources Council of Maine (Allison) have similarly encouraged our work on the book. In particular we would like to thank Lane Nothman and Fritz Reid from the Boreal Songbird Initiative, and Lisa Pohlman, Kathy Thompson, and Gretta Wark from the Natural Resources Council of Maine.

Although we never had the opportunity to meet world renowned ornithologist K.H. Voous, who wrote *Birds of the Netherlands Antilles*, we greatly value the opportunities we had to communicate with him in the first years that we visited Aruba. The world owes him tremendous gratitude for the years of thorough ornithological research that he compiled in not only several editions of the aforementioned book but also numerous journal publications. Even after the English version of *Birds of the Netherlands Antilles* was published in 1983, Voous continued to collect bird records from the islands. After his death in 2002, these reports were compiled under the leadership of Tineke Prins and Hans Reuter of the Zoological Museum Amsterdam and published as an annotated checklist in 2009; coauthors Adolphe Debrot, Jan Wattel, and Vincent Nijman made important contributions. Their work has been a valuable resource for people studying the avifauna of Aruba, Bonaire, and Curaçao.

The Caribbean Research and Management of Biodiversity (CARMABI) foundation, headquartered on the island of Curaçao, provided all kinds of help to us over the years, including the use of a vehicle and lodging in their field station, GIS support, and advice and encouragement. Former director Adolphe Debrot provided key support and encouragement for our efforts. Dolfi, as he is affectionately known by many, has been one of the most prolific scientists ever to have focused attention on the islands, which were once known as the Netherlands Antilles. His massive list of publications covers topics as diverse as coral reef ecology, marine mammals, birds, insects, restoration ecology, and much more. We gratefully acknowledge his contributions to our work and to furthering the understanding of the ecology of Aruba, Bonaire, and Curaçao. Leon Pors, formerly of CARMABI,

and John De Freitas, still with CARMABI, have provided information and advice that have been helpful.

The staff at Arikok National Park on Aruba, Washington-Slagbaai National Park on Bonaire, and Christoffel Park on Curaçao deserve praise for their continuing efforts over many decades to ensure the ecological integrity of the lands under their stewardship. Many of them have been helpful to us in a variety of ways. Longtime Arikok National Park ranger Julio Beaujon has continued to be a great source of knowledge over many years. Dilma Arends, formerly one of the park leaders, was a strong supporter of research and education efforts in earlier years and was instrumental in putting together financial support to bring park ranger Everaldo Raffini to the famed Hog Island Audubon Ornithology Camp in Maine. Greg Peterson, chair of the Arikok National Park Foundation, founder and president of Aruba Birdlife Conservation, and board member of the Dutch Caribbean Nature Alliance, has been a champion of bird and ecological education and conservation on Aruba. His tireless efforts on behalf of the birds and people of Aruba deserve recognition and support.

We have been assisted in large and small ways by a number of staff of STINAPA Bonaire, including Sabine Engel of the Bonaire National Marine Park, who arranged a visit to Klein Bonaire for conducting bird surveys; former manager of Washington-Slagbaai National Park, Fernando Simal, for arranging access to the park for bird surveys and sound recording; George “Kultura” Thode, for providing background on status of bird species in the park, as well as his thoughts on the natural history of White-tailed Nightjars; and park ranger Clifford Cicilia, for his interest in attending the Audubon Camp at Hog Island, Maine, to learn more about birds and birding. We thank Seth Benz, Sabine Engel, Janneke van Gerwen, Rene Hakkenberg, George de Salvo, Fernando Simal, and Larry Theilgard for helping to put together sponsorships that allowed Clifford to attend the camp.

Many other people not associated directly with the national parks have also been instrumental in supporting our work. Gerard Phillips, an Irish birder and artist now living in Canada, accompanied Jeff on a bird survey trip on Curaçao. His birding skills and his enthusiasm and good humor, despite a grueling survey schedule, were much appreciated. We also greatly appreciate the accommodations provided by the Buddy Dive Resort on one of our trips to Bonaire, through the support of Carol Bradovchak, Ruud van Baal, and Marcel Westerhoff. The late Jerry Ligon, a birding expert and bird guide from Bonaire, provided a valuable service by compiling bird sightings and documentation; we remember him for his enthusiasm for teaching people about birds and sharing information. Seabird expert Ruud van Halewijn was one of the earliest to document the offshore marine birds around the ABCs. Ruud continues to be involved in bird research and conservation on the islands.

Thriving birding communities now exist on all three islands, and these resident birders have been wonderfully supportive in providing information and photographs. They include Aruba birders Julio Beaujon and Tyrone de Kort. It was a pleasure to spend time birding on Aruba with Ferdinand Kelkboom, Michiel Oversteegen, Sven Oversteegen, Peter Sprockel, and Ross Wauben. Curaçao birders we wish to thank include Bart de Boer, Michelle Da Costa Gomez, Carel de Haseth, Eric Newton, Chris Richards, Cisca Rusch, and Rob Wellens; and on Bonaire, Elly Albers, the late Jerry Ligon, and Sipke Stapert.

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Introduction

Birds of Aruba, Bonaire, and Curaçao: A Site and Field Guide is intended both for visitors to the islands and the people who live there. This is the first book ever that is both a site guide and a field guide to the birds of the ABCs. So, whether you are a visitor thumbing through it in the gift shop of your hotel or a resident who wants to learn more about the birds that inhabit your home, this book should serve you well. We have tried to make it accessible to beginners and experts alike. Our hope is that it will inspire readers—regardless of their nationality—to contribute in whatever fashion to efforts that will ensure that these birds remain a part of the islands' natural heritage for generations to come.

The book opens with a series of introductory chapters, the first a general description of the islands themselves, including notes on history and culture; second, information about the fascinating ecology of the ABCs; and finally an introduction to the varied avifauna of the islands.

The site guide is organized by island. For each of the three main islands—Aruba, Bonaire, and Curaçao—we have chosen sites that experience has taught us are the best, most accessible locations for birding. Of course, there are always new places to explore, and we hope birders will let us know of other locations that they think deserve attention in future editions of the book. For each site, there is a map, directions to get there, and a summary of information about what birds are likely to be found there, as well as helpful hints about when and how to look for birds there.

The bulk of this book is devoted to the field guide, which is divided into two parts. A series of beautiful color plates by artist Robert Dean illustrate the species we considered appropriate for inclusion in this book as of August 2016. We have purposely not included illustrations for a handful of birds that were likely escaped birds or for which there is only limited supporting documentation. The color plates appear on right-hand pages; the facing page gives a short description of the key identification features of the bird and its length. Generally, you will be able to identify most birds seen on the islands simply by perusing the plates and the accompanying short descriptions. If you encounter a bird whose identity is still a puzzle to you, or if you just want to learn more about the bird's status, there is a more in-depth written account describing plumage, similar species, vocalizations (when relevant), status, and range.

This book ends with a section on bird conservation that includes a proposed list of endangered, threatened, and special concern species on each island, a history of the major factors impacting bird populations on the islands, a summary of conservation organizations and projects, and recommendations for each island. It also includes a summary of species conservation initiatives and needs.

Bird Names

For English and scientific bird names, we have followed the eBird/Clements Checklist of Birds of the World, version 2016, with three exceptions: 1) we use

Troupial rather than Venezuelan Troupial, as it seems misleading to describe a native species as being from another country; 2) we continue to separate Caribbean Coot and American Coot and; 3) we leave Bananaquit in its own family, Coerebidae, rather than include it in the Thraupidae family. We have included common names in both Papiamentu (including island-specific variations) and Dutch bird names in each species account. These are taken from Prins et al. (2009), with some name variations also included from Voous (1983) and a few new recent names from Peterson (2016).

Species Included

We have included illustrations for 294 species in the book (including three non-native parrot species that evidence suggests are now established in the suburbs of Kralendijk on Curaçao). There are a number of species kept in captivity that have escaped or been released, some seen for years in certain locations, that we do not include in the book. A good example is a record of a single Tricolored Munia, a bird native to parts of Asia, which was seen over a period of several months in 2013 at the Divi Links on Aruba.

Several of the species that Prins et al. (2009) thought did not have established populations—Chestnut-fronted Macaw, Blue-crowned Parakeet, and Scarlet-fronted Parakeet—we now consider to be established (or possibly established), and so include them.

Among the 280 species that Prins et al. (2009) thought had been appropriately documented, we take issue in several instances, which is to be expected as authors often disagree on criteria for accepting bird species. Many regions of the world have established bird record committees that follow fairly strict rules as to what constitutes acceptable documentation. No such committee exists for Aruba, Bonaire, or Curaçao, either individually or collectively.

On reviewing purported photographic evidence, we can cite several cases in which birds that would have been new to the islands were in fact erroneously identified. Other reported species that we considered at the time of the book's publication to be insufficiently documented for inclusion on the list include Great Frigatebird, Northern Jacana, Mouse-colored Tyrannulet, Swainson's Flycatcher, Yellow-throated Warbler, Swainson's Warbler, Greater Antillean Grackle, Boat-tailed Grackle, and Oriole-Blackbird; these species are all very similar to resident species and/or are generally difficult to identify. For a number of birds included on a recent checklist of birds recorded from Aruba (Peterson 2016), we are not aware of any published or publically available documentation; therefore we do not include them on our official list. These species include some that are very likely captive escaped birds, including Greylag Goose, Muscovy Duck, and Java Sparrow. Others, such as White-winged Dove, Smoky-brown Woodpecker, Northern Rough-winged Swallow, and Bronzed Cowbird, appear on the list without any supporting information. We also do not include some species currently appearing on eBird.org because, again, they are either very likely escaped caged birds or we feel that they are not substantiated by sufficient evidence.

There are a number of misidentified species on Observado.org, some so improbable that they should charitably be considered data entry errors; in other cases, the photographs provided as supporting evidence show a different species. These include California Quail, Abdim's Stork (photo shows a Tricolored Heron), Long-billed Curlew, Zenaida Dove, Campo Troupial, Common Grackle, and Yellow-headed Blackbird (photo shows a Yellow-hooded Blackbird).

Species that have been recorded on one or more of the ABCs since Prins et al. (2009)—and that we consider well documented—include Whistling Heron, Long-winged Harrier, Turkey Vulture, American Pygmy Kingfisher, Smooth-billed Ani, Pied-water Tyrant, and Lined Seedeater (as the book was going to press the occurrence of a new species, Great Kiskadee, was confirmed by photographs on Curaçao). We recognize that some of the species that we have not included on our list may in fact have been correctly identified, but we believe it is important to err on the side of prudence. Proper documentation is important because it establishes scientific credibility about the true status and distribution of species, information vitally important for conservation efforts. Archived documentation (photos, videos, audio recordings) also allows future researchers to evaluate new information that might provide further insight into the biology and status of a species.

Notes on Status

While we have endeavored to summarize all known published records of uncommon and rare birds from the ABCs, it is virtually impossible to search all possible places now available on the Internet where sightings, photos, and video of birds may be posted. Some sources, like the trip reports posted to our websites Birds of Aruba (www.arubabirds.com) and Birds of Bonaire (www.bonairebirds.com), are readily available to us and to others. Sightings input into eBird.org and Observado.org are also generally available, although sometimes details are lacking and it can be time consuming to track down each individual observer for more information. There are other trip report websites and photo websites where some sightings and documentation can occasionally be found but there is no systematic way to track down such records. Many Facebook sites (including our own Birds of Aruba and Birds of Bonaire Facebook pages) invite people to post photos and sightings of birds from the ABCs. These can be very helpful for learning about the status of birds, although many of these posts lack specific information about when and where the birds in the photos were seen, making it difficult to use the information to understand the status of various species. We have tried our best, given those caveats, to describe the status of each species. We apologize in advance for records we may have missed. If you have records you would like us to consider for future editions of this book, please visit ArubaBirds.com and BonaireBirds.com. Also be sure to input your records in eBird at www.ebird.org. Note that we cite our own observations in the status sections of the book with our initials as AJW.



The Islands

For first-time visitors, especially those from cold climates where winter colors are primarily a range of grays, stepping onto any of these islands may be a wonderful shock to the senses. It's not just hype—the Caribbean islands, including the ABCs, are surely as close as it gets to a colorful paradise for travelers escaping an icy winter.

Aruba, Bonaire, and Curaçao are located in the southwestern Caribbean, not far from the northern coast of Venezuela (on a clear day, you can see that country from parts of Aruba), within the Atlantic Time Zone. Although after-effects of strong storms elsewhere in the Caribbean have on occasion caused considerable damage along the coasts of the islands, such weather is so infrequent that the phrase “out of the hurricane zone” is used as a major marketing point in promotional literature, enticing travelers to visit the islands at any time of year.

The close proximity of the ABC islands to one another means that they share many features. The water temperature is a soothing 78 to 82 °F (26 to 28 °C). The air temperature hovers at about 80 °F (27 °C), with a warm, almost constant breeze. The sky is a delightful clear blue most days. Although there is a designated rainy season, October through January, showers can come on quickly at any time of year. If you're out birding at any distance from shelter, accept your fate: you will be drenched. Rain showers on the ABC islands may last just minutes, but the water sometimes falls in torrents; nevertheless, the rain here is never accompanied by cold weather and you will dry off nearly as quickly as you get wet.

All of the ABC islands have lovely white sand beaches (especially Aruba) and coral reefs (especially Bonaire). Much of the native thorn-scrub habitat has been widely disturbed or destroyed by feral populations of goats and donkeys brought to the islands centuries ago by European settlers. The resort industry has also taken a toll on the land, particularly on Aruba, which receives more than a million tourists each year.

Along the coasts, primarily on the north and northwestern sides of the islands, lie ancient coral reef beds, sharp, craggy, and largely uninhabited by plant and animal life; near the water, however, skulk beautiful white or blue crabs, and, toward the interior, you may see the occasional lizard. The ocean is wild and unpredictable here; more than a few swimmers have lost their lives to the ruthless combination of strong waves and jagged rocks. For the visitor, nevertheless, a trip to the craggy north side is a must, if for no other reason than to appreciate the contrast between these austere coasts and the exquisite white-sand beaches on other parts of the island.

The ABCs have a combined human population of about 275,000, with approximately 39% living on Aruba, 6% on Bonaire, and 54% on Curaçao. The official language is Dutch, but the native tongue is Papiamentu, a rich combination of Spanish, Portuguese, Dutch, French, and English, with some indigenous Arawakan names, along with an occasional word of African origin. On most parts of the islands, particularly in the more populated areas, English is widely spoken. Most housekeeping and general custodial help in the resort industry primarily speak Spanish (they are often from mainland South America) and understand little English.



The crime rate is low on all of the islands, and during our many visits we have never been the victims of petty theft. Needless to say, however, criminal acts occur in every country in the world, and petty theft is often a problem in places with lots of tourists. A family member of ours who scuba dives often in Bonaire reports that rental car agencies have asked her to leave her car unlocked, with no valuables in it, as the island has recently seen an uptick in thieves breaking into cars. Always use caution, listen to the advice of hotel staff about when and where it is safe to go, and, ideally, travel with others.

The first inhabitants of the islands were indigenous peoples that, according to archeological evidence, lived there starting thousands of years ago. Europeans arrived in the early 1500s, and so began the modern colonial history of Aruba, Bonaire, and Curaçao. The earliest European visitors were Spaniards, who laid claim to the islands by the early 1500s. They captured many of the indigenous Caquetio and took them away as slaves. A small number of Spaniards lived on the islands throughout the sixteenth century; they came under Dutch control in the 1600s and remained administrative units of the Netherlands until very recently and

with only a short interlude (the British held the islands for a brief period in the early 1800s). The islands today reflect their rich historical and cultural origins.

Aruba, Bonaire, and Curaçao were, until recent decades, all considered part of the Netherlands Antilles—sometimes called, unofficially, the Dutch Caribbean. Aruba and Curaçao are now independent, while Bonaire is considered a special municipality of the Netherlands. The islands have also often been referred to collectively as the ABC islands. The authors use that shorthand designation in the book at times but recognize that the islanders and the island governments generally prefer not to consider themselves in a collective sense, as each island now governs itself independently.

Although the islands have much in common, each has notable differences, something worth keeping in mind when you are deciding on which of the ABC islands to visit.

Aruba

Aruba is the smallest of the ABC islands, a mere 70 mi² (180 km²) in area; it is 19 mi (30 km) long and, at its widest point, 5 mi (8 km) wide, with about 43 mi (68 km) of coastline. The westernmost of the three islands, it lies 48 mi (77 km) to the west of Curaçao (and 98 mi [158 km] to the west of Bonaire), making Venezuela, which is just 17 mi (27 km) away, its closest neighbor. Like all of the ABCs, Aruba has the good fortune to be located outside of the Caribbean hurricane zone.

The average annual temperature on Aruba is 82 °F (28 °C) with lows averaging around 78 °F (25.9 °C) and highs of 89 °F (31.5 °C). There is very little seasonal variation, but the highest temperatures are generally experienced June through October. The climate is very dry, with near constant tradewinds. Rainfall averages about 20 in (500 mm) annually; although showers can occur throughout the year, the heaviest rains occur from October through January.

Aruba is famous for the white sand beaches that extend along its southwestern coast. This is where most of its resorts are located, along with Oranjestad, Aruba's capital city. Just offshore are several coral reefs that are popular snorkeling spots, especially Baby Beach at the southeastern tip and Malmok on the southwestern side. Dense mangroves cover reef islands off Oranjestad, while wetlands at Bubali, Spanish Lagoon, and Savaneta are lined with mangroves and/or buttonbush. A water treatment facility at Bubali (sometimes called Bubalipias), located behind the high-rise hotels, is a haven for birds. Intermittent wetlands (salinas) occur in a number of areas on the southwestern side of the island, notably near Malmok, north of Bubali, and at Tierra del Sol.

The interior of the island is characterized by semi-arid thorn scrub. Although Aruba is primarily flat, about 18% of the land falls within Arikok National Park, in the northeast; its rolling hills, covered with thorn scrub, offer breathtaking views of sparkling turquoise Caribbean waters. Here you will find the divi-divi tree (*Caesalpinia coriaria*), for which the island is known; these grow pointed sharply south as a result of the near constant northeasterly tradewinds. Various species of cacti are prevalent in some areas of the island, especially those in which goats have grazed for hundreds of



The ABC islands are a popular destination for cruise ships, luring hundreds of thousands of visitors annually.

years, resulting in the loss of other forms of vegetation. The desolate north side is virtually devoid of vegetation, and few people live there. It consists of a series of ancient coral reef steps that are sharp and craggy, in many places taking the form of steep cliffs.

Aruba is a major tourist destination. As you pass through the airport, you will find yourself bombarded with a flurry of coupons and brochures from employees of local restaurants and time shares. Taxis line the street in front of the airport, and booths representing car rental companies dot the sidewalk. The stream of energetic tourists coming and going seems at times to contrast with the laid-back attitude of some of the locals, resulting in a curious “hurry up and relax” atmosphere. While for many tourists the main attractions on Aruba are the beaches and the shopping at the bustling boutiques, many do visit Arikok National Park and other nature sites.

There are two main cities: Oranjestad, the capital, with a population of about 20,000, and San Nicolas, home to some 17,000 people. Oranjestad is the tourism hub, located as it is within an easy walk or ride to the resorts. It's also the port city for the cruise ships. By day, it bustles with government employees and shoppers; at night, the clubs, restaurants, and casinos are hopping. San Nicolas, by contrast, currently receives relatively few tourists (efforts are underway to change that), although many tour and party buses stop at the famous Charlies' Bar and Restaurant, where mementos left by fishermen, oil workers, scuba divers, and others line the

walls. It used to be the larger of the two cities, flourishing because of a boom in phosphate mining and the construction in 1924 of an oil refinery built to handle Venezuelan oil extracted from its Maracaibo Basin oil deposits. The refinery was being dismantled and converted to an oil storage facility but recently plans have been put forth to reopen it as a refinery.

In 1986, Aruba seceded from the Netherlands Antilles to become an independent member of the Kingdom of the Netherlands. Although Aruba is a member of the Kingdom of the Netherlands, its government is autonomous, with a prime minister who is elected every four years and who oversees a Council of Ministers; parliament has 21 members. The island's official language is Dutch, though Papiamentu is the local language. English is now *almost* universally spoken throughout the island. Spanish is also common, and is the primary (sometimes only) language spoken by many employees of the resort industry. As of 2014, the total Aruba population was 107,394 (Central Bureau of Statistics Aruba 2015).

Aruba's currency is the Aruban florin (sometimes also called the guilder), but the US dollar is accepted virtually everywhere—shops in rural areas may not be able to break large bills or give change in US currency. Other currencies can be easily exchanged at island banks. ATM machines are located at hotels and throughout the island in urban areas but your best bet is to use machines associated with banks. Traveler's checks and credit cards are readily accepted; personal checks typically are not.

For decades Aruba's slogan was "One Happy Island," and do be prepared to encounter many warm, friendly people during your stay. The first human inhabitants of Aruba were indigenous peoples from mainland South America. Later came Caquetio peoples (from the broad Arawakan language group), who were already living on Aruba when European's first arrived. By the mid-1600s, the Dutch had taken over and remained in control for several hundred years, with the English assuming control briefly during the Napoleonic wars. Add to this mix people who have arrived from South America in recent times to work in the tourist industry, immigrants from Europe, and visitors who end up staying forever, and you have what today is an island composed of people with wonderfully diverse cultural heritages.

Bonaire

Bonaire is the easternmost of the three ABC islands, located about 54 mi (87 km) from the coast of Venezuela and 30 mi (50 km) from the nearest ABC island of Curaçao. It is 37 mi (60 km) east of the uninhabited atolls of Islas Las Aves, Venezuela. Bonaire has a land mass of approximately 111 mi² (272 km²); 21 mi (35 km) long, it is 9 mi (15 km) at its widest point.

The average annual temperature on Bonaire is 82 °F (28 °C) with lows averaging around 78 °F (25.9 °C) and highs reaching 89 °F (31.5 °C). The hottest months are generally June through October. The climate is very dry, with near constant tradewinds. Rainfall averages about 19 in (490 mm) annually; there is generally



The ruins of Malmok Lighthouse in Washington-Slagbaai National Park, Bonaire.

more rainfall October through January, though showers can occur throughout the year. Like the other two ABCs, Bonaire is located outside the hurricane zone.

The population of Bonaire was estimated at 17,400 in 2013. While Dutch is the official language of the island, the local language is Papiamentu. Spanish and English are also widely spoken.

Some 70,000 tourists visit Bonaire annually, but their presence is less noticeable than on faster paced Aruba. It is an easy island to get around on, with far less traffic than Aruba, and it tends to attract more tourists interested in nature rather than in sunbathing on the beach. Lacking the great number of white sand beaches that characterize Aruba, Bonaire's biggest draw is its marine park—and its birdlife. Bonaire is internationally known for its pristine coral reefs that provide excellent scuba diving and snorkeling; the island's government has gone to great lengths to protect these reefs, recognizing that they are an important natural resource.

The interior of the island is primarily dry, semi-arid, thorn scrub. Much of the wooded hills and valleys of the northwestern part of the island have been preserved as the Washington-Slagbaai National Park, which totals 9,300 acres (3,800 hectares) and is managed by STINAPA, the Netherlands Antilles National Parks Foundation. The park is dominated by Mount Brandaris, which, at 797 ft (243 m), is the island's highest point. Also within the park—and bordering it—are rocky coasts, sandy beaches, inland bays, lagoons, and salinas.

On the southern end of the island, where the land is flat and approaches sea level, you will find the area known as the Pekelmeer, a series of shallow lagoons that over the course of hundreds of years have been modified for salt production. After the middle of the twentieth century, the lagoons were further modified for large-scale industrial salt production; water levels are tightly controlled within a series of condenser lagoons to maximize salt production. Much of the salt ends up in US homes, in water softener systems. The Pekelmeer is also where American Flamingos gather by the hundreds and shorebirds flock for feeding in the winter.

About a half-mile (800 m) off the western side of Bonaire lies a small uninhabited islet, Klein Bonaire (in English, Little Bonaire). The flat, coral-limestone area that composes the islet is a mere two meters (at most) above the surface of the surrounding waters; in size, it is about 1,500 acres (607 hectares). The islet is fringed with beaches, and the vegetation consists only of low-growing scrub. Klein Bonaire is a popular spot for scuba diving and snorkeling, as a pristine coral reef surrounds the islet. It was privately owned from 1968 until 1999, when it was purchased by the government of Bonaire, the World Nature Fund, and the Foundation to Preserve Klein Bonaire, and is now part of the Bonaire National Marine Park. There are plans to reintroduce native vegetation.

Spain occupied Bonaire—and claimed it as its own—in 1499. When the Spanish arrived, they overlooked the fact that the island was already home to indigenous peoples, including the Caquetio (from the Arawak language group). In fact the island had been inhabited for thousands of years. The Dutch took possession in 1636 and, despite brief periods of occupation by the British during the early part of the 1800s, the island has remained under Dutch influence (Hartog 1978). Slavery forms a tragic chapter of the history of Bonaire, and one can still see huts that were built for the slaves who labored in the salt pans in the southern end of the island. Slavery was abolished on Bonaire in 1863 (Hartog 1978).

In 1954 the Netherlands granted self-rule to all the Caribbean islands then under its possession. These islands, then forming the new nation of Netherlands Antilles, were nominally granted autonomy, although they still belonged to the Netherlands. The capital of the Netherlands Antilles was located in Curaçao, with each island electing a lieutenant governor and representatives to parliament. In 2010, The Netherlands Antilles was dissolved, and Bonaire became a “special municipality” of the Netherlands, its people now officially Dutch citizens.

The capital of Bonaire is Kralendijk. It has some souvenir shops, but unlike Aruba’s Oranjestad it is not a tourist enclave. Overall, the town has something of a European feel. Life moves a little slower here. Rincon, located in the interior on the way to Washington-Slagbaai National Park, is the island’s oldest settlement. Hardly a metropolis, it is a quaint settlement with many century-old buildings.

The island’s currency, formerly the guilder, is now the US dollar. Traveler’s checks and credit cards are readily accepted within the tourist industry and in Kralendijk, and you can normally find access to ATMs. The island economy is largely dependent on ecotourism, with the main focus on scuba diving in the



Colorful colonial buildings are a striking feature of downtown Willemstad, Curaçao. The city, rich with history, has been designated a UNESCO World Heritage Site.

waters of the marine park that surrounds the island. The salt production industry, a small oil transfer facility, government offices, banking, and fishing also provide employment. Unemployment on Bonaire is quite low, and so is the crime rate.

Curaçao

Curaçao is the largest of the three islands, with a land area of 285 mi² (444 km²). It is 30 mi long (60 km) and 7 mi (11 km) wide at its thickest point. Sandwiched between Aruba and Bonaire—48 mi (77 km) east of Aruba and 30 mi (50 km) west of Bonaire—and just 43 mi (70 km) off mainland Venezuela—Curaçao, like Aruba and Bonaire, lies outside of the Caribbean hurricane zone.

The average annual temperature on Curaçao is 82 °F (28 °C). Low temperatures average around 78 °F (25.9 °C); the highest temperatures (89 °F [31.5 °C]) are generally experienced June through October. The seemingly perpetual tradewinds keep the climate very dry. Average rainfall of about 22 in (550 mm) slightly exceeds that on Aruba and Bonaire; while you shouldn't be surprised by rains at virtually any time of year, the rainiest months of the year tend to be October through January.

Curaçao's geological features include eroded volcanic hills, ancient limestone terraces, small pocket beaches, and semi-enclosed inland bays that are surrounded by

dense mangroves. Several shallow, enclosed hyper-saline lagoons provide important habitat for waterbirds. There are also a number of freshwater catchment dams—many built originally for the use of the oil industry—that may hold a large amount of water even during the dry season. The natural landscape is largely characterized by rugged, rocky terrain covered with scrub woodlands; some areas are dominated by columnar cacti. The generally flat land is punctuated by limestone terrace cliffs. While most of the island is surrounded by coral reefs teeming with life, the island's northern coast is exposed to wild, rough surf that rolls in from the open sea. This contrasts sharply with the sheltered coves of the southern coast, which boast calm, sandy beaches with turquoise waters. On the northwestern end of the island is St. Christoffelberg, the island's highest peak (1,230 ft [375 m]), which lies within Christoffel National Park. It and nearby Shete Boka National Park are characterized by thorn scrub vegetation and windswept bluffs. The parks provide important habitat for birds and other wildlife as well as protection for a high concentration of rare plants.

Spain claimed Curaçao in 1499, and it remained in Spanish hands until the Dutch seized control in 1634. In 1807, Curaçao was taken by the British, but the Dutch regained control in 1815. It was during the seventeenth century that the Dutch began trading slaves; they took Africans from their homelands and brought them to countries like Curaçao, which was one of the largest slave depots in the Caribbean. Slavery was abolished in 1863, and today the island's slave huts serve as a museum. Historically, Curaçao was the capital of the Netherlands Antilles, which—until that entity was dissolved in 2010—comprised Aruba and Bonaire as well as the islands of Saba, St. Eustatius, and St. Maarten. Curaçao has a long history as a trading and commercial hub of the region, and that history is reflected in its people, whose cultures and ancestries are fascinatingly diverse.

Curaçao is an autonomous country within the Kingdom of the Netherlands. Its people are primarily of Dutch and African ancestry, and the island has much more of a European feel to it compared to Aruba and Bonaire. Dutch is the official language, though island residents speak Papiamentu. English and Spanish are also widely spoken.

A 2011 census estimated the population of Curaçao at 150,563, which makes it the most populated of the three islands. Indeed, many parts of the island are highly urbanized, with about 30% of the land said to be occupied by housing and industry (Debrot and Wells 2008). In bygone eras, the cultivation of seasonal crops, charcoal production, and livestock grazing altered the land to a considerable degree. Today, however, secondary woodlands are gradually recuperating, especially on the western half of the island. Tourism, real estate development, contamination by pollutants, and disturbance due to recreational activities are among the principal threats to remaining habitat areas.

The capital city of Curaçao is Willemstad. Full of historic buildings, the city retains its colonial Dutch charm; in fact the city center has been designated a UNESCO World Heritage Site. It is very walkable and full of shops and vendors, making it a popular destination for tourists.

Curaçao's official currency is the guilder (called the florin in Papiamentu), although the US dollar is widely accepted. The Euro is also accepted—to a lesser extent—at many hotels and restaurants. You will be able to use major credit cards

and find ATMs in larger population centers throughout the island—withdrawals can usually be made in either local or US currency.

Tourism is one of the island's main economic drivers. The majority of visitors come from the Netherlands, but there are also tourists from the rest of Europe, the US, and South America. Justly famous for its rich cultural history, the island's coral reefs also afford great scuba diving and snorkeling. It is also known for its financial services industry. At one time, Curaçao was home to the world's largest oil refinery. Oil refining continues to take place on the island, and remains a significant employer and major part of the island economy.

Ecology

This section attempts to give a general description of the ecology of the ABCs by considering five factors:

1. Geology
2. Geography
3. Climate
4. The surrounding ocean
5. Land use



Ancient coral reef escarpments show remnants of changes in sea level over millions of years. They provide important specialized habitats for bats, owls, parrots, and other birds.

Geology

The history of the geology of the islands is a fascinating one, as here you will find volcanic rocks, fossilized coral reefs, and even boulder fields that are thought to have been caused by ancient tsunamis (Alexander 1961; Engel et al. 2010; Hippolyte and Mann 2010; Muhs et al. 2012). Aruba, Bonaire, Curaçao, and some tiny Venezuelan islands to the west of Bonaire are the tips of the mostly submerged Leeward Antilles Ridge, which roughly parallels the South American coast (Hippolyte and Mann 2011). This ridge runs along the northern edge of the South American tectonic plate and just south of the point where the Caribbean tectonic plate pushes against and under the South American tectonic plate.

The oldest geological regions of the islands, volcanic and sedimentary rock found in the interior of each island, were formed in the Cretaceous period (145.5 to 65.5 million years ago). The islands sat above sea level through the Oligocene (33.9 to 23 million years ago) and then submerged during the Miocene (23 to 5.3 million years ago), after which they slowly reemerged from the sea. The process of submerging and reemerging has left the islands with a layered, “wedding-cake” landscape. The higher elevation Cretaceous volcanic cores of each island are encircled by a relatively narrow band of limestone deposits formed by sea creatures from the Miocene, when the islands were submerged. These deposits are themselves bordered by a series of 3 to 5 terraces, some stepped and some gradually sloped, that each represent an ancient coral reef laid down over the last 2.5 million years (Quaternary Period); as ocean levels rose and subsided through the ice ages (Alexander 1961; Schellmann et al. 2004; Muhs et al. 2012), the reefs were sometimes submerged and at other periods exposed. When exposed, the reef terraces would be eroded by wave action, forming cliffs in some areas. These ancient reef terrace cliffs are oriented generally parallel to the shoreline, hundreds of meters inland from the sea. They are not only a striking feature of the landscape but are also incredibly important specialized habitats for animals (bats, owls, parrots, and parakeets, among others) and plants (Lace and Mylroie 2013).

Geography

The plants and animals that occur on the ABCs are a fascinating mix; although most species are of South American origin, some come from other regions of the West Indies, and yet others have been introduced from remote parts of the world. Even the oldest inhabitants of the islands arrived relatively recently in geological terms (van Buurt 2005); as sea levels subsided, more land area was exposed, providing more terrain for colonizing plants to establish themselves, which in turn provided more habitat for colonizing animals.

In general, the number and the identity of species that colonize an island are a function of the degree of difficulty of reaching that island from other land masses; the size of the island; the types of habitats and food—and their abundance; and the amount of freshwater that is available. The degree of difficulty of reaching an island

is in part a function of distance but also, of course, relates to the ability of a given species to travel long distances. Given that the ABCs are much closer to the South American mainland than to West Indian islands, it is not surprising that there are many more species of animals of South American affiliation than of West Indian affiliation. In fact, when sea levels were low during the Quaternary Period (2.6 million years ago to present day), Aruba may have been connected by land to mainland South America.

There are, nonetheless, a number of species on the ABCs that either bear a family relation to species on other West Indian islands or that in fact have migrated from those islands. For example, the closest relatives of *Anolis bonairensis*, a small lizard that is endemic to Bonaire, occur in the Lesser Antilles (van Buurt 2005). Among the bird species found on the ABCs that are of West Indian origin, note the following:

- **Black-whiskered Vireo.** Breeds from coastal southern Florida through the Greater and Lesser Antilles and on the ABCs but not (as far as is known) on the South American mainland (although most populations are thought to winter in northern South America).
- **Caribbean Elaenia.** Resident along the Caribbean coast of the Yucatan Peninsula; also occurs from Puerto Rico south through the Lesser Antilles, to Grenada, and on the ABCs. It is not known from the South American mainland.
- **Scaly-naped Pigeon.** Resident in Cuba, Hispaniola, and Puerto Rico. Also occurs south through the Lesser Antilles, to Grenada, and then on Curaçao and Bonaire, but not on South American mainland.
- **Pearly-eyed Thrasher.** Resident in southern Bahamas, Puerto Rico, and south through Lesser Antilles to St. Lucia and then also on Bonaire.

Stoffers (1956) also lists 35 plant species of exclusively West Indian origin that are known from the ABCs. As more research documents the less well-known animal groups found in the ABCs, including various arthropods such as dragonflies, moths, butterflies, pseudoscorpions, and spiders (Miller et al. 2003; Debrot 2006; Paulson et al. 2014), perhaps other fauna of West Indian origin will be discovered.

Although most plant and animal species of the ABCs are clearly of South American origin, many have been isolated long enough to have evolved distinct characteristics. Among the birds, Debrot (2006) lists 22 endemic subspecies of birds that occur in the ABCs but are of South American origin. Some of the more easily differentiated endemic subspecies (some may eventually be considered distinct species) include the three island-specific subspecies of Brown-throated Parakeet, Aruban Burrowing Owl, Curaçao Barn Owl, possibly the relatively recently discovered Bonaire Barn Owl, the ABC subspecies of Yellow Warbler, White-tailed Nightjar, Grasshopper Sparrow, American Kestrel, Eared Dove, Rufous-collared Sparrow, Aruba-Curaçao Bananaquit, and Bonaire Bananaquit (Voous 1983; Debrot 2006).

Examples among the mammals include the Curaçao White-tailed Deer, the Aruba-Curaçao Cottontail, the Curaçao Long-nosed Bat, and the Vesper Mouse (Debrot 2006).

Species or subspecies of reptiles (van Buurt 2005; Debrot 2006) that are of South American origin include the Aruban Rattlesnake (*Crotalus unicolor*), Aruba Cat-eyed Snake (*Leptodeira annulata bakeri*), Curaçao Three-scaled Ground Snake (*Liophis triscalis*), Aruban Whiptail (*Cnemidophorus arubensis*), the Curaçao Whiptail (*Cnemidophorus murinus murinus*), the Bonaire Whiptail (*Cnemidophorus murinus ruthveni*), Antilles Gecko (*Gonatodes antillensis*), Curaçao-Bonaire Leaf-toed Gecko (*Phyllodactylus martini*), Aruba Leaf-toed Gecko (*Phyllodactylus julieni*), and the Aruba-Curaçao Striped Anole (*Anolis lineatus*).

Debrot (2006) lists 40 species and 4 subspecies of insects and arachnids endemic to Aruba, Bonaire, and Curaçao. Plants, too, show some endemic species, with a total of at least nine found only in the ABCs, including three species of *Agave* and three of the *Melocactus*—one of the authors' favorite group of plants (Proosdij 2012).

Many species of birds on Aruba, Bonaire, and Curaçao move back and forth between the islands and the mainland of South America. For these species, the populations on the islands can likely be considered part of larger, regional metapopulations, spatially isolated groups that at least occasionally exchange breeding individuals among them. American Flamingos are known to regularly move back and forth between the islands and the mainland, although Bonaire is perhaps the sole primary nesting place for this regional metapopulation. Nesting terns can easily make long-distance movements and some individuals likely shift nesting locations, at least occasionally, from the ABCs to Venezuelan islands from year to year. Herons, egrets, and other wetland-dependent birds have been seen at sea among the ABCs, and they are known to appear in larger numbers on the islands when precipitation increases the volume of wetland habitat. These birds are clearly moving back and forth between the islands and the mainland. There are even observations of landbirds like Bare-eyed Pigeons and Ruby-topaz Hummingbirds flying above the sea at locations between the islands and mainland Venezuela, suggesting that for some species such movements may be much more common than we once thought.

Climate

Centuries past, even the first European colonizers of the islands noted their extremely hot and dry climate. Indeed, many landscapes on the ABCs often characterized as desert or desertlike are home to a variety of cacti and other plant species adapted to dry climates. This arid climate is shared with parts of the northern edge of the neighboring South American continent, so it is no wonder that a number of animals—including the Yellow Oriole, Ruby-topaz Hummingbird, and Bare-eyed Pigeon—and plants occur in both places.

Although the ABCs occupy a fairly small land area—and even though the climate on each of the islands is often rather uniformly arid—there is a surprisingly high number of plant community associations found here. For example, Stoffers (1956) described 18 plant community types on the ABCs, and de Freitas et al. (2005) classified and mapped 18 vegetation types on Bonaire. Although most bird

species may not be sensitive to the full variety of vegetation types, there are, predictably, many species that show preference for certain structural aspects of the vegetation and landforms. Places with low scrubby thickets interspersed with open areas are important for Crested Bobwhite, Burrowing Owl (Aruba), Grasshopper Sparrow (Curaçao and Bonaire), and White-tailed Nightjar. Areas with flowering shrubs are critical for Blue-tailed Emeralds and Ruby-topaz Hummingbirds. Mangroves and thicker shrub or dry-forest vegetation often harbor nesting Brown-crested Flycatchers, Northern Scrub-Flycatchers, Caribbean Elaenia, and Black-whiskered Vireo (though the latter two species are widely distributed on Curaçao and Bonaire, on Aruba they have only been found in mangroves in recent years). Wintering or stop-over migrants that breed in North America tend to occur in greatest diversity in mangroves and shrubby areas near water, except during a major “fallout,” when large numbers of migrating birds are blown off course by storms and seek food, water, and shelter on the islands, wherever they may find it.

For virtually all birds on the islands, whether breeder, migrant visitor, or winterer, survival depends on finding sufficient daily food and water and avoiding predators. In the arid climate of the islands, finding water sources is critical to survival. Historically, natural water seeps and springs would have been incredibly important during extended dry seasons; today, birds can also seek water at water treatment facilities, pools in backyards and hotels, and at other water sources created by humans.



Endemic Aruban whiptail lizards. These colorful reptiles are a common sight throughout the islands. They are unusual among whiptail lizards in that they are largely vegetarian.

But away from “civilization,” massive numbers of birds visit water holes in Washington-Slagbaai National Park on Bonaire and in Christoffel National Park on Curaçao. Wetland birds appear on the ponds that develop behind dams after heavy rains, as at Malpais (Curaçao) and Onima (Bonaire). Food sources for birds are typically more abundant near wetlands or in vegetation near wetter areas, whether around the edges of a pond or waterhole or in arroyos (small valleys or ravines) where small streams flow after rains. Food includes seeds, insects, lizards, mice, and, in the case of bird-eating hawks like Merlins and Peregrine Falcons, smaller birds.

The bodies of water that harbor wetland birds contain small fish, freshwater shrimp, and other aquatic invertebrates as well as aquatic vegetation and seeds. All of these food sources reach their peak abundance after rains, and birds time their reproductive efforts to try to ensure that their young are hatched when there will be abundant food.

Although many birds on the islands breed throughout the year, nesting for many landbird species generally peaks around the time of the rainy season; nesting is sometimes delayed or possibly even suspended during protracted droughts. Wetland-dependent birds like the Caribbean Coot, Common Gallinule, Least Grebe, and Pied-billed Grebe will occupy freshwater ponds, sometimes within weeks after precipitation forms them, and then begin nesting. They will continue to nest as long as water remains; when water does begin to dissipate at the end of the rainy season, a poignant scene develops as adult birds and their young attempt to survive on an ever shrinking and crowded pond.

Rains stimulate the flowering of cacti and many other plants. In addition to providing nectar for the two resident hummingbird species, Bananaquits, and some migrant North American birds, these flowers also attract insects and bats. These animals all play a vitally important role as pollinators, assisting native plants in reproducing. In fact, some species of bats on the islands have seemingly co-adapted with certain cactus species in which flowers open only a single night; the bats actively search them out and move pollen among them as they feed on the nectar in the flowers (Petit 1995, 2001, 2011; Bekker 1996; Petit and Pors 1996; Petit et al. 2006).

The Surrounding Ocean

The birds and other animals whose natural history is interwoven with the waters that surround the islands live in synch with cycles entirely different from those of the animals that live exclusively on land. Herons, egrets, Brown Pelicans, and other resident bird species that feed along the shoreline and in shallow salinas and bays that are wholly or partly interconnected with marine waters may nest throughout the year. These same shallow intertidal and coastal habitats often support migrant wintering or stop-over Arctic or sub-Arctic breeding shorebird species (sandpipers and plovers, for example), wintering Laughing Gulls, Royal Terns from North American breeding locations, and sometimes other wintering terns such as Sandwich “Cayenne” Terns.



Ruddy Turnstones (*Arenaria interpres*) spend the winter months along the islands' coasts, far from their Arctic breeding grounds.

Another group of birds use these near-shore marine habitats generally only during the April–August period, when they come to the islands to nest. Snowy and Wilson's plover nest (at least on Bonaire and Curaçao) on beaches and dried out salinas, as do Least Terns, which also nest on reef terraces along the shore, wherever there is some sand or gravel. Sandwich “Cayenne” Terns, Common Terns, Roseate Terns, and Royal Terns arrive in the summer to nest on small islets in bays and in Bonaire's Pekelmeer, and on Aruba's San Nicolas reef islands, where they are joined by Bridled and Sooty terns as well as Brown and Black noddies.

The marine waters surrounding the islands, so well-known for their coral reefs and the snorkeling and scuba diving they afford, also play host to pelagic bird species that, for the most part, rarely come to land. Two pelagic bird species that do roost on land—and that regularly forage close enough to shore so that they are easily seen by birders—are the Magnificent Frigatebird and the Brown Booby. Frigatebirds roost in small mangrove islands in a few places, including just off Aruba's Oranjestad Harbor, where cruise ship passengers often see them coming and going to their roost. Brown Boobies roost on cliffs in a few favored spots on all three islands—and an attentive observer can sometimes get excellent views of the birds on the cliffs.

Most other pelagic bird species, however, are only occasionally seen from land or require hours of scanning out to sea with a telescope in order to have a chance of spotting them. Recently, off the coast of Aruba at least, observers on

commercial sport fishing boats have expended considerable effort looking for whales, porpoises, dolphins, and pelagic birds (Luksenburg 2011, 2013, 2014; Luksenburg and Parsons 2013, Luksenburg and Sangster 2013). Not only have these efforts helped document the occurrence of at least 16 species of cetacean in the waters around Aruba (including Killer Whales, False Killer Whales, Spinner Dolphins, Atlantic Spotted Dolphins, and Pantropical Spotted Dolphins), they have also documented a number of pelagic bird species offshore from the islands (Luksenburg 2013, Luksenburg and Sangster 2013). Species photographically documented from these efforts include Black-capped Petrel, Cory's Shearwater, Red-billed Tropicbird, Masked Booby, South Polar Skua, and Pomarine Jaeger (Luksenburg and Sangster 2013). Some yet-to-be published data from offshore surveys conducted in Fall of 2014 also found Audubon's Shearwater, Masked Booby, and Red-footed Booby.

Land Use

Human society and industry have dramatically affected the ecology and animal communities on Aruba, Bonaire, and Curaçao, especially in recent history. The last 50 years have seen a rapid rise in the human population on the islands and increased numbers of tourists.

The introduction—often intentional—of non-native animal species has had a great impact on the ecology of the ABCs. The introduction of such herbivores as cattle, goats, donkey, sheep, and horses has likely had the most damaging effects—over the longest time period—on the vegetation communities, altering plant species composition, age, and structural components.

More recently, the introduction of the Boa Constrictor to Aruba appears to have diminished the size of bird and lizard communities, with perhaps the Aruban Brown-throated Parakeet and Rufous-collared Sparrow the most seriously affected. Many birds that are now commonly seen around homes and hotels on the islands are introduced (or likely introduced) species. These include House Sparrows, Carib Grackles, Shiny Cowbirds, and Saffron Finches.

The building of dams, especially larger dams for industrial use and agriculture, has greatly changed the ecology of the islands, as has the discharge from sewage treatment facilities. In a natural state of affairs, the bodies of water formed by rain come and go, thus affording habitat for birds only at certain times of the year. But dams and other artificial bodies of water maintain relatively stable water levels, which means that species that previously could not survive—or at least persist—on the islands now can. Neotropical Cormorants and Caribbean Coots, for example, now breed at permanent water bodies on Aruba, at both Bubali and the Divi Links golf course.

The loss of natural habitat through real estate and other development projects has of course dramatically changed the plant and animal communities on the islands. Less habitat means fewer birds, logically, although the lack of long-term monitoring data on bird populations has made this difficult to measure precisely.

Some bird species have taken advantage of new “built” habitats on the islands. In addition to the wetland-dependent birds that have taken advantage of human-made, permanent bodies of water, many species, some introduced and some native, now regularly inhabit landscaped and watered grounds of hotels and modern homes. Non-native Carib Grackles are seen foraging on the lawns of hotel grounds and stealing food from open-air dining rooms. They are often joined by native species like Bananaquits, Tropical Mockingbirds, and Eared Doves, sometimes even by Bare-eyed Pigeons and Troupials. In places where dining areas are near the shore, wintering Ruddy Turnstones will take food from dining areas, including from tabletops, if given the chance. It is always a surprise to see this bird, which breeds in the Arctic, begging for French fries at a dockside bar in the Caribbean! A few bird species that likely arrived on their own have found a foothold in new artificial habitats on the islands. Black-bellied Whistling Ducks, for example, now nest at the sewage treatment plant at Klein Hofje (Curaçao) and at Bubali (Aruba). Southern Lapwings and Cattle Tyrants have found that the large expanses of short grass on the Tierra del Sol golf course on Aruba provide just the kind of habitat they prefer.

Avifauna

Aruba, Bonaire, and Curaçao is an exciting place to go birding, in part because its species are an eclectic mix of residents, migrants, and marine birds. North American or European birders will undoubtedly be intrigued by the breeding tropical landbirds. For some of these landbirds, the ABCs are the northernmost outpost of their South American range. For other species, which breed in many regions of the Caribbean, the ABCs are their southernmost breeding site.

The Pearly-eyed Thrasher (Bonaire only), Black-whiskered Vireo, Caribbean Elaenia, Gray Kingbird, Scaly-naped Pigeon (Bonaire and Curaçao), and Black-faced Grassquit are essentially Caribbean species. Yet other birds are more closely identified with Central and South America, including the Yellow-shouldered Parrot (Bonaire only), Brown-throated Parakeet, Bare-eyed Pigeon, Eared Dove, White-tailed Nightjar, Northern Scrub-Flycatcher, Ruby-topaz Hummingbird, Blue-tailed Emerald, Yellow Oriole, and Troupial.

Some South American birds that have recently begun to breed on the ABCs include the Carib Grackle and, at least on Aruba, Southern Lapwing and Cattle Tyrant. The islands are also home to island-specific subspecies of American Kestrel, Burrowing Owl (Aruba), Barn Owl (Curaçao and Bonaire), Brown-throated Parakeet, Bananaquit, Yellow “Golden” Warbler, Rufous-collared Sparrow (Aruba and Curaçao), and Grasshopper Sparrow (Bonaire and Curaçao).

Resident birds that breed on freshwater ponds, salinas, and shallow bays are another attraction. Perhaps the most striking species is the American Flamingo, which displays a range of showy pinks; Bonaire has a breeding colony, while those that occur on Aruba and Curaçao probably are visiting mostly from



Bonaire. The White-cheeked Pintail, one of the most sought-after breeding species on the islands, regularly appears on its bodies of water. Many species of egret and heron—Snowy Egret, Great Egret, Cattle Egret, Little Blue Heron, Tricolored Heron, Black-crowned Night-Heron, Yellow-crowned Night-Heron, and Green Heron—are breeders, and most of them commonly occur in wetland habitats on all three islands. On the ABCs, freshwater habitats were once rare and ephemeral but, as the outflow from water treatment plants has created permanent bodies of water, some fairly large, they now support breeding species such as the Black-bellied Whistling Duck, Neotropical Cormorant, Least Grebe, Pied-billed Grebe, Black-necked Stilt, Caribbean Coot, and Common Gallinule.

A number of seabirds and shorebirds nest on the islands, mainly from April to August. Some of these, like the Laughing Gull, Brown Pelican, American Oystercatcher, and Sandwich “Cayenne” Tern, also occur regularly during winter, along the coasts of the islands. Other breeding species like the Snowy Plover, Wilson’s Plover, Least Tern, Common Tern, Roseate Tern, Bridled Tern, Sooty Tern, Black Noddy, and Brown Noddy are present primarily only from March to August, when they nest.

A large proportion of the species that occur on Aruba, Bonaire, and Curaçao are migrants that do not breed there. Most of these nest in North America and migrate south to the Caribbean or Central and South America for the winter. The most commonly observed northern migrant wintering birds on the islands are probably the Northern Waterthrush, Blue-winged Teal, Lesser Yellowlegs, Sanderling, and Ruddy Turnstone. Other species, less abundant but regularly seen, include the Black-bellied Plover, Whimbrel, Osprey, Merlin, Peregrine Falcon, and Belted Kingfisher. Yet other migrants are common on the islands but only for relatively short periods; these include the Barn Swallow, Bank Swallow, Blackpoll Warbler, and, occasionally, Yellow-billed Cuckoo.

An enjoyable aspect of birding on the islands is looking for the regular and not-so-regular northern migrants. You can find some of these birds, including the Black-and-white Warbler, American Redstart, Ovenbird, Hooded Warbler, and Prothonotary Warbler, with persistent pishing, especially in mangroves or shrubby areas near water. Over the last 20 years, we have noted a somewhat interesting phenomenon: there are a number of warblers found with increasing frequency in the ABCs that normally winter farther north and that are often quite rare on the South American continent. These include the Northern Parula, Common Yellowthroat, Yellow-rumped Warbler, Palm Warbler, Prairie Warbler, Black-throated Blue Warbler, Cape May Warbler, Chestnut-sided Warbler, and Worm-eating Warbler. A few species that breed in the Greater Antilles and southern Florida have been recorded in the ABCs as migrants headed to and from South American wintering areas; some of these migrants—including the Black-whiskered Vireo and Gray Kingbird—also have resident breeding populations on the ABCs. Such species as the Mangrove Cuckoo and Caribbean Martin, however, only occur as migrants.

Although a variety of northern landbird migrants that winter in South America have been recorded in the ABCs, a number of them with some regularity (at least historically), including the Bobolink, Dickcissel, and Rose-breasted Grosbeak,

most have only been recorded a handful of times. This includes species like the Swallow-tailed Kite, Eastern Kingbird, Olive-sided Flycatcher, Eastern Wood-Pewee, Veery, Gray-cheeked Thrush, Swainson's Thrush, Cerulean Warbler, Canada Warbler, Tennessee Warbler, and Summer Tanager.

Many shorebirds that breed in northern or even Arctic regions pass through the ABCs, with small numbers staying throughout the winter. From October through March or April, it is generally quite easy to find Lesser Yellowlegs, Greater Yellowlegs, Spotted Sandpiper, Solitary Sandpiper, Least Sandpiper, Black-bellied Plover, Semipalmated Plover, Ruddy Turnstone, Sanderling, Whimbrel, Short-billed Dowitcher, and Wilson's Snipe in appropriate wetland or marine habitats on the islands. Shorebird species that are regular visitors but less common or more localized (easiest to find on Bonaire) include the Stilt Sandpiper, Semipalmated Sandpiper, Western Sandpiper, Pectoral Sandpiper, and Willet. Occasionally at the Pekelmeer, on Bonaire, relatively large numbers of Red Knots appear, but it is unclear whether they are wintering there or just stopping over during migration. At least 10 other shorebird species have been recorded in the ABCs. Of the migratory waterfowl, only the Blue-winged Teal, a duck that breeds in North America, is a common migrant and winterer on the islands; all other species generally are much rarer, except for the Lesser Scaup, Ring-necked Duck, American Wigeon, and Northern Shoveler, which are now seen with some regularity at certain locations in the ABCs.

A smaller number of the migrant species recorded in the ABCs originate from South American breeding locations. Some are most likely birds that have made short-distance dispersal movements from the mainland, including the Masked Duck, Comb Duck, Fulvous Whistling-Duck, Whistling Heron, Boat-billed Heron, Roseate Spoonbill, Scarlet Ibis, Glossy Ibis, Black Skimmer, Limpkin, Wattled Jacana, Collared Plover, Yellow-headed Caracara, Amazon Kingfisher, Ringed Kingfisher, Ruddy Ground-Dove, Red-legged Honeycreeper, Yellow-headed Blackbird, and Red-breasted Blackbird. Other species are probably austral migrants, species that breed in southern South America and migrate to northern South America during the southern winter (June, July, and August). While a more complete understanding of austral migration—and the species that undertake it—requires further research, austral migrants recorded in the ABCs include the Gray-capped Cuckoo, Lesser Elaenia, Streaked Flycatcher, Vermilion Flycatcher, Fork-tailed Flycatcher, White-winged Swallow, Chilean Swallow, and Brown-chested Martin. Birders should keep watch for austral migrants, particularly June through September.

An in-depth understanding of the offshore marine bird life of the ABCs requires more research. While some dedicated seabird surveys were carried out in the 1970s, there has been little else except for occasional opportunistic records from passing cruise ships. Nonetheless, in 2010 and 2011, Luksenburg and Sangster (2013) went aboard commercial sports fishing boats that were taking visitors out for a day of fishing in waters around Aruba. They tallied a remarkable 415 boat-based surveys. The two saw and photographed many species unusual for the area, including the Black-capped Petrel, Cory's Shearwater, Red-billed Tropicbird, Masked Booby, and South Polar Skua (Luksenburg and Sangster 2013). Other

offshore surveys carried out in 2013 and 2014 recorded sightings of tropicbirds, Audubon's Shearwaters, and Red-footed and Masked boobies. Birders may find it fruitful to go on commercial sport fishing trips to see seabirds. Nevertheless, newer, better optics make it possible to see more seabirds from strategically placed shore watches as well.

Like many birders, we have always been drawn to birding on islands. Islands are famous for drawing in exhausted migrants and concentrating them in a relatively small area. And in years of little rain, those migrants are further concentrated, as there are fewer locations to find water, food, and safety from predators. Such places are often hopping with a diversity and abundance of birds, and when birds are concentrated, it is easier to get close to spot any unexpected species. The ABCs have been host to their share of surprising finds. There is the single record of the Double-striped Thicknee on Curaçao in 1934, the Oilbird that occurred on Aruba in 1976 (Voous 1983), the two records of Northern Wheater (Voous 1983), the Brown Thrasher found on Curaçao in 1957 (Voous 1983), the Little Egret from Aruba in 2003 and 2005 (Prins et al. 2009), and the Western Tanager that the authors photographed on Bonaire in July, 2001.

Whether you enjoy watching colorful tropical resident species, scoping shorebirds and waterfowl at your favorite salina, scanning the sparkling waters and azure sky for seabirds, either from shore or from the deck of a boat, or pishing in the migrant songbirds at a waterhole, the ABCs are a birder's paradise.



Jeff Wells (right), one of the authors, birding at Aruba's Bubali Bird Sanctuary with resident birders and photographers Michiel Oversteegen (left) and his son Sven (center), members of the thriving local birding community.

Site Guide


The goal of the site-guide section of this book is to highlight the best locations to find birds. Describing every locale—on each of the three islands—would be impossible, of course; there are too many nooks and crannies, pull-over viewing spots, and other areas to list, and doing so would result in an unwieldy book with a dizzying array of options. With few exceptions, the goal of most birders is to see as many birds as they can, as easily as possible. To that end, we have mainly focused on time-tested, favorite birding spots that are relatively easy to get to. This is especially important for birders disembarking from cruise ships, many of them with just a few hours to spend on any given island.

At virtually any time of year, most of the featured hotspots offer great opportunities for seeing resident species; during migration seasons, these same spots also allow you to see migratory species, some headed north, others south. In addition to providing information about where to go, the site guide also tells you how to get there, usually starting from well-known, easy-to-find landmarks depicted on most maps worthy of the name. We also cite approximate distances (in miles and kilometers) between key itinerary locations, and let you know which journeys might require a vehicle with four-wheel drive and/or high clearance. (Always check to make sure that your rental car has a reliable spare tire, as unpaved side roads sometimes contain sharp, volcanic rocks that can cause punctures.)


As you plan your excursions, please keep in mind that both the natural world and human-made infrastructure undergo constant change. Flowering times and changing water levels, for example, can result in changes at a given location in the number of species and in their abundance. And, new roads are sometimes built, old roads rerouted, and the condition of any road will vary over time; also, with changes in land ownership, the access to a given birding site may change. So, as you set out on your birding itinerary, be prepared to improvise—and to consult locals—should you encounter changes in routes or property access.


Aruba




 birding site

 parking

 birding site and parking

 entrance

 hotel and recreational spots

Aruba

Bubali Bird Sanctuary, Bubaliplas

Along the western coast of Aruba, just inland from its famous beaches, lies Bubali Bird Sanctuary, a large freshwater lake where a great number of bird species can be found. Originally a series of salinas (small, seasonal pools), the now-permanent wetlands of Bubali were created in 1973 from the freshwater outflow of the sewage treatment plant that serves the nearby hotels. The west side of Bubali is bordered by a thick band of mangroves. Elsewhere, particularly on the east side, there are thick reed beds.

Bubali not only offers a rich variety of bird species but also easy viewing—in 1998, a tower was erected on Bubali's north side, affording sweeping views of the birds that gather on the open water of the wetlands.

Birding Bubali

The best approach is to start in the thorn-scrub habitat on the west side of the lake, along the human-made canal that connects it with the ocean. This is a great area to see most of Aruba's scrub-loving species: Brown-throated Parakeet (listen for its harsh screeches), Tropical Mockingbird, Black-faced Grassquit, Common Ground-Dove, and, rarely, Burrowing Owl.

As you move from this scrub habitat into the abutting mangroves that border the lake, you'll probably notice a mysterious rustling sound that seems to repeat itself with every step you take. These are NOT the spirits of Bubali birds past! It's the sound of many sun-loving lizards as they scuttle away, one step ahead of you. Where scrub and mangrove meet, look for the tiny exquisite Blue-tailed Emerald, along with the Bananaquit, Northern Scrub-Flycatchers (less common), and, sometimes, Groove-billed Ani.

Entering the mangroves, you'll likely hear the low *whooo WHO-but-YOU, WHO-but-YOU* of Bare-eyed Pigeons and the sound of their noisy wing flaps as they move about. Common Gallinule, more commonly heard than seen, make clucking and trumpeting sounds as they shyly scurry away. You may flush a Green Heron, yellowlegs, or a snipe.

The mangroves host any number of overwintering warbler species. Northern Waterthrush is the most common; you'll hear their sharp *chink* notes. Ovenbirds are also fairly regular. Less common warblers include Cape May, Blackpoll, Black-and-white, Northern Parula, Prothonotary, and Hooded. Rare or one-time sightings have been made in Bubali of Black-throated Blue, Yellow-rumped, Magnolia, Palm, and Prairie warblers. It's nearly impossible to miss the many breeding Yellow "Golden" Warblers. Generally, the best way to find warblers here is to stand by a mangrove or shrub and pish for five to ten minutes. Their curiosity will bring them in.

The eastern side of Bubali is the ideal place to see groupings of Neotropic Cormorants, sunning themselves in the mangroves or diving for fish in the open



water. It's also the best place to find a wide variety of wading birds (including Tricolored and Little Blue herons), any one of which could be nesting in the mangroves. You'll have good looks at Caribbean Coot, Pied-billed Grebe, and Common Gallinule.

The viewing tower on the north side of Bubali provides an excellent vantage point. Here you can watch the birds as they go about their business, oblivious to your presence. The tower has a covered roof that provides much-welcome shade, making it an excellent place to set up your spotting scope. Look for Groove-billed Anis, herons, ducks, and other waterbirds. With luck, you may see a Sora during winter months or, more rarely, a Purple Gallinule striding along the reed edge. Check the water along the entrance road for herons, egrets, and Pied-billed Grebes. Pishing in the scrubby habitat near the tower entrance road can yield interesting birds. We have seen Common Yellowthroat and Bay-breasted Warbler in this area, which is usually full of Yellow "Golden" Warblers. The tower is ideal for children who have an interest in nature. Sometimes Bare-eyed Pigeons and Brown-throated Parakeets land at eye level in the tops of trees near the tower, giving stunning views. When water levels are high, parts of the road leading to the tower may be submerged, so use caution.

You'll also want to cross the street from the tower and look in the open water behind and beside the Mill Resort (where the big red Dutch windmill is located).

You'll likely have clear views of Blue-winged Teal, White-cheeked Pintail, Common Gallinule, Caribbean Coot, numerous herons and egrets, Black-necked Stilts, and smaller gatherings of other shorebirds as well (Killdeer, Greater and Lesser yellow-legs, Least and Semipalmated sandpipers, and occasionally other species). In recent years we have seen Lesser Scaup, Northern Shoveler, Black-bellied Whistling-Duck, and Scarlet Ibis here.

Directions

To reach Bubali from the bridge in downtown Oranjestad, follow L.G. Smith Boulevard (Route 1A) west, curving north for 2.8 mi (4.6 km) until you reach an intersection with a road named Bubaliweg. Turn left (west) toward the beach and follow this road (you'll pass the sewage treatment plant on your right) for about 0.3 mi (0.5 km) until it intersects with J. E. Irausquin Boulevard, which runs along the shore. Turn right on Irausquin Boulevard. About 200 yards (200 meters) before reaching a small bridge above the canal that connects Bubali and the sea, you'll come to a dirt road on your right. If you follow this it will take you into the thorn-scrub habitat bordering on the mangroves along the west side of Bubali. You can park here to explore the area on foot. Before venturing on, you might want to check some of the great vantage points along the coast to scan for terns and Brown Pelicans.

To reach the tower on the north side of Bubali, return to J. E. Irausquin Boulevard and turn right (north) and travel 0.75 mi (1 km) to a rather busy



The observation tower at Bubali provides an excellent vantage point for viewing the abundant water birds.

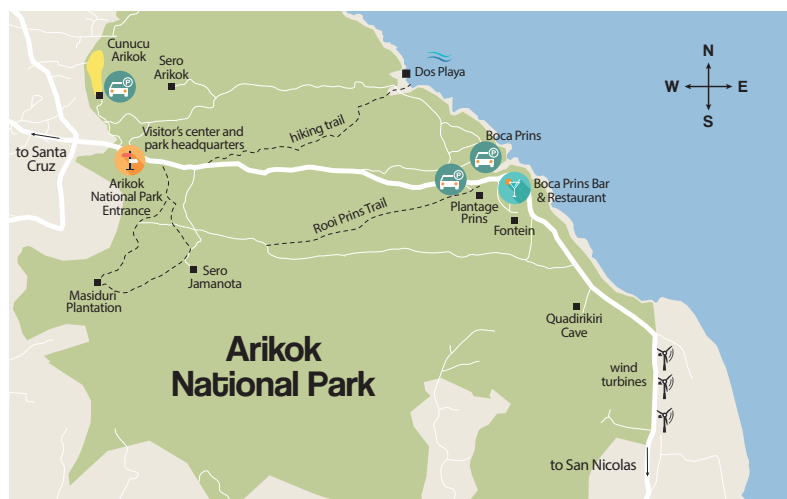
intersection. Turn right (east) heading toward the big, red windmill (visible on your left) and watch for the entrance to a dirt road on your right, within 200 yards (200 meters). This is the road to the observation tower, which itself should be visible a few hundred yards farther along.

Arikok National Park

Perhaps the most pristine place on the island is Arikok National Park, which lies in the hilly northeastern section of Aruba. The park consists of rolling hills covered with thorn-scrub vegetation and affords breathtaking views of the turquoise waters of the Caribbean; when the skies are clear, you can even see the Venezuelan mainland.

Officially incorporated in 2002, the park encompasses 7,900 acres (3,200 hectares), 17% of the land area of the island. When we first visited in 1993, the park was more of an idea than a reality. At the base of a hill was a dirt road and a small rustic sign, not too far from today's official park entrance. Today the park has a beautiful visitor's center located at the entrance. In addition to clean restrooms and a small gift shop, there is also a fascinating interpretive display that provides a bounty of information about the natural history of the park and the island in general. And, you will always find a ranger on duty, some of whom know their birds pretty well.

The main road through the park has specially engineered drainage dips that draw off water during tropical rains and also serve to keep visitors from driving too fast (thus providing some level of protection for the rare Aruban Rattlesnake). Today the areas along the main road are much more heavily vegetated than they were 15–20 years ago, likely because goats and donkeys have been excluded but perhaps also because the island now receives more rain.



Birding Arikok National Park

Regardless of where you go in Arikok, it is best to begin early in the morning, when the park is pleasantly cool and the birdlife is most interesting—bird activity peaks just after dawn. From late morning on, the park gets hot, intensely hot, so remember to bring plenty of water. Also watch for snakes; although now very rare, the Aruban Rattlesnake does occur here as does the non-venomous Cat-eyed Snake. Boas have been introduced on the island and have devastated many bird populations, although they are essentially harmless to humans.

The park is large and has many hiking trails, so ideally you should plan on more than one day, especially when considering that the very best birding is restricted to early mornings. While the park does not officially open until 8:00 a.m., give a call to the Arikok National Park office ([+297] 585-1234) to see if you can arrange birding visits before then.

Black-faced Grassquits and Yellow “Golden” Warblers are ubiquitous here as they are across much of the island, and Bananaquits, although perhaps not as abundant as around some of the landscaped grounds of resorts and backyards, are still easy to find. Northern Scrub-Flycatchers and Brown-capped Flycatchers are widespread here, but can be difficult to see unless you can tune into their calls, as both species are amazingly adept at staying hidden in thick, thorny scrub vegetation. Troupials are often heard giving their loud piping calls and can be easily spotted as can Common Ground-Doves, Bare-eyed Pigeons, Eared Doves, and White-tipped Doves. Crested Caracaras may be seen gliding over the hills but don’t be fooled into thinking you are seeing a White-tailed Hawk as they too have a



The beautiful visitors center at the entrance to Arikok National Park.

mostly white tail with a dark terminal band. Both Blue-tailed Emeralds and Ruby-topaz Hummingbirds seem to appear in numbers throughout the park when the shrubs come into full flower. Historically, the area that is now the park was home to at least occasional nesting pairs of White-tailed Hawks (the species nests on Curaçao and perhaps still on Bonaire), although it is unclear when they were last confirmed nesting on Aruba—certainly sometime before 1983. Two other species that are now gone from Aruba probably nested in the region that is now the park. The globally rare Yellow-shouldered Parrot disappeared from Aruba around 1947 (Voous 1983) but was documented historically from places like Fontein and Rooi Prins within what is now the park (Voous 1957). The Scaly-naped Pigeon apparently occurred as a resident breeder on Aruba until 1930, when it was last seen at Rooi Prins in what is now the park (there are two possible records of vagrant individuals on Aruba since that time).

Below we describe some of the sections of the park that we have always found to be productive birding spots, though we encourage you to check out less visited areas too.

Visitor's Center and Park Entrance

The big, shady trees that line the arroyo (usually dry) that runs in front of the visitor's center are a good place to begin. Approach quietly and try a little pishing under them to see what may come in. In these trees, we have seen uncommon to rare migrants in some years, including Yellow-billed Cuckoo, Hooded Warbler, Northern Parula, and Indigo Bunting. We have seen Blackpoll Warblers in this area even more frequently. This is one of the most reliable locations on the island to find Yellow Orioles. The area around the visitor's center and park entrance has been host to at least one pair of Burrowing Owls since at least the 1990s—inquire with the park rangers to get tips about where to see them. Please do your best to avoid frightening these rare birds.

In recent years, we have not seen two species that were once common in the area. The sweet song of the Rufous-collared Sparrow echoed in the surrounding hills until about 2003, but since then we have not found the species ourselves nor seen reports from other observers. Similarly, in the 1990s the hillsides here rocked with the squawks and screeches of the Aruban Brown-throated Parakeet, but we have not seen or heard them here in several years.

Cunucu Arikok

Heading north from the visitor's center toward Sero Arikok, on your left you will come to a gravel road (on which you can walk or drive) after a few hundred meters. It leads to the parking area at Cunucu Arikok, a charming example of the farming homesteads (cunucu) that were once common in the area. Like the original farms, Cunucu Arikok is enclosed by a stone wall (*tranchi*) and fencing to keep goats out. This location is protected from the constant trade winds and has always had thick vegetation as a result. There are easy walking paths throughout the area, an